



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,370	07/17/2001	Stephen Ivor Hall	HALL-00108	2963

25628 7590 08/09/2005

LAW OFFICES OF WILLIAM H. HOLT  
12311 HARBOR DRIVE  
WOODBIDGE, VA 22192

EXAMINER
----------

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/889,370	<b>Applicant(s)</b> HALL ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1725	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/10/04, 6/22/05, and 7/19/05.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17,18 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17,18 and 20-32 is/are rejected.
- 7) ☒ Claim(s) 20 and 30-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2001 and 10 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 20 and 30-32 are objected to because of the following informalities: in claim 20, 5<sup>th</sup> line, add a comma after "electrode" for clarity. In claim 30, 3<sup>rd</sup> line, add a comma after "unit" for clarity. In claim 31, 3<sup>rd</sup> line, add a comma after "system" for clarity. In claim 32, 3<sup>rd</sup> line, add a comma after "clutch" for clarity. Appropriate correction is required.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 17, 18, and 20-32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2-13 and 17-22 of U.S. Patent No. 6,548,027. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims (each drawn to reactors for processing of a gaseous medium in an exhaust system of an internal

Art Unit: 1725

combustion engine) share at least the following common features: a reactor bed; an adjacent power supply unit adapted to apply a potential across the reactor bed, such that the reactor bed and power supply are connected electrically and are enclosed in an electrically conducting enclosure (Faraday cage) connected to be maintained at ground potential; the power supply producing a pulsed or alternating output voltage; electrodes coated with a dielectric material; and an ac generator driven by an engine via a constant speed drive system having a hydraulic drive unit, a stepless variable speed transmission system, and/or an electromagnetic clutch. Claims 2-4 of US 6,548,027 include the limitation "the reactor bed comprises a cylindrical body of gas permeable dielectric material...", while claims 17 and 29 of this application include the (indefinite under 35 USC 112, 2<sup>nd</sup> paragraph) limitation "the reactor is of the dielectric barrier discharge type". One of ordinary skill in the art would have recognized that the reactor bed having the dielectric material of US 6,548,027 would be operable to serve as a coating/barrier for the cylindrical body of the reactor bed, for the purpose of reducing emissions of particulate materials from the exhaust of internal combustion engines (US 6,548,027; abstract; column 1, lines 6-9 and 64-67; and column 2, lines 1-29).

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 17, 18, and 20-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding independent claims 17 and 29, the word "type" in the limitation "of the dielectric barrier discharge type", when appended to an otherwise definite term, may render the term indefinite, *Ex parte Copenhaver* 109 USPQ 118.

Claims 17 and 29 recite the limitations "the processing" and "the dielectric barrier discharge type". There is insufficient antecedent basis for these limitations in the claims.

Claim 18 recites the limitation "the reactor bed material". There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitations "the outer one" and "the inner one". There is insufficient antecedent basis for these limitations in the claim.

Claim 24 recites the limitations "the resonant frequency", "the electrical circuit", "the frequency", and "the output voltage". There is insufficient antecedent basis for these limitations in the claim.

Claim 27 recites the limitation "the exhaust system". There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitations "the output" and "the rotational speed". There is insufficient antecedent basis for these limitations in the claim.

Claim 29 recites the limitations "the resonant frequency", "the electrical circuit", "the frequency", "the output voltage", "the exhaust system", "the output", and "the

rotational speed". There is insufficient antecedent basis for these limitations in the claim.

Claims 30 and 32 recite the limitation "the drive efficiency". There is insufficient antecedent basis for this limitation in the claims.

Claim 31 recites the limitation "the effective gear ratio". There is insufficient antecedent basis for this limitation in the claim.

### ***Response to Arguments***

6. The examiner acknowledges the applicants' amendment and replacement drawing sheet received by the USPTO on 12/10/04, 6/22/05, and 7/19/05. The replacement drawing sheet overcomes prior objections to the drawings. All prior 35 USC 102(b) and 35 USC 103(a) rejections have been overcome by amendments to independent claim 17. However, new claim objections, as well as new double patenting and 35 USC 112, 2<sup>nd</sup> paragraph rejections for the claims are now set forth (see paragraphs 1, 3, and 5). The applicants have cancelled claim 19. Claims 17, 18, and 20-32 are currently under consideration in the application.

7. Applicants' arguments filed December 10, 2004, with respect to the rejection(s) of the claim(s) under Birmingham et al. have been considered and are persuasive. Therefore, these rejections have been withdrawn. However, upon further consideration, a new ground of (double patenting) rejection is made in view of US 6,548,027 -- in the absence of Birmingham et al.

**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,284,556 is also cited in PTO-892.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 8/7/05*  
Primary Examiner  
Art Unit 1725

KPK  
kpk  
August 7, 2005